

AD623414

Quarterly Letter Report

for the period

1 January 1965 through 31 March 1965

DEVELOPING A SYSTEM OF SOLAR FLARE PREDICTION

ARPA order #215, Amendment #14  
Project Code #AR002-10-01, 1-24

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Name of Contractor:

The Regents of the University of Colorado  
Boulder, Colorado

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Date of Contract: January 1, 1965

Contract Expiration Date: December 31, 1966

Amount of Contract: \$17,500

Contract Number: Nonr 1147(13)

Project Scientist: Donald E. Billings  
Professor, Astro-Geophysics  
University of Colorado  
Boulder, Colorado  
Telephone: 443-2211, Area Code: 303, Ext. 6591

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Head, Physics Branch  
Physical Sciences Division  
Office of Naval Research  
Washington 25, D. C.

Attention: Director, ARPA

Reference: Contract #Nonr 1147(13)  
Quarterly Letter for the Period 1 January 1965  
through 31 March 1965

Gentlemen:

Work on the contract was carried out during the quarter by Mr. Lorne Avery under the direction of Dr. Billings. Work has been directed toward study of the intervals between flares in the same region. The objective of the study is to find evidence whether flares occur as the explosive discharge of energy that has been built up gradually, or whether they occur when statistical fluctuations in the magnetic field configurations lead to an instability. We find, in the case of flares over simple sunspot configurations, that the frequency histogram for various intervals between flares peaks rather sharply at 80-100 minutes, whereas for more complex spot groups the peak broadens toward shorter intervals. We interpret this result as favoring the hypothesis of build-up and discharge. The time interval gives us evidence of the rate of energy-input during the build-up period and also provides us a basis for predicting the frequency of flares from an active region.

Respectfully submitted,



Donald E. Billings  
Project Scientist

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